Amendment to the Claims:

Please amend the claims as follows.

Please cancel claims 3, 5, 16, 20, 23, 41 to 43, 82, 98 to 102, 107 to 111, 113 to 117 and 127 to 129, without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An isolated, synthetic or recombinant nucleic acid comprising (a) a sequence having at least **[[**90%**]]** 95% sequence identity to SEQ ID NO:26, and encoding a polypeptide having an esterase activity, or, (b) a sequence completely complementary to (a).

Claim 2 (currently amended): An isolated, synthetic or recombinant nucleic acid of claim 1, comprising a sequence comprising SEQ ID NO:26 or sequences completely complementary thereto.

Claim 3 (canceled)

Claim 4 (currently amended): An isolated, synthetic or recombinant nucleic acid (a) encoding a polypeptide having an esterase activity comprising a sequence that hybridizes to the nucleic acid of SEQ ID NO:26 or (b) sequences completely complementary to (a),

wherein the hybridization conditions comprise a wash for 30 minutes at room temperature in 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM $Na_2EDTA$ containing 0.5% SDS, followed by a 30 minute wash in fresh 1X SET at $T_m$-10ºC.

Claims 5 to 20 (canceled)

Claim 21 (currently amended): The isolated, synthetic or recombinant nucleic acid of claim 1 **[[**20**]]**, wherein the sequence identity to SEQ ID NO:26 is at least ~~about~~ 97%.

Claim 22 (currently amended): An isolated, synthetic or recombinant nucleic acid comprising a sequence (i) encoding (a) a polypeptide having an esterase activity and having at least

[[90%]] 95% sequence identity to the sequence of SEQ ID NO:36, or, (b) enzymatically active fragments of (a); or (ii) fully complementary to (i).

Claims 23 to 39 (canceled)

Claim 40 (currently amended): A method of producing a polypeptide having an esterase activity comprising introducing a nucleic acid as set forth in claim 1 ~~or claim 3~~ into a host cell under conditions that allow expression of the nucleic acid to produce a polypeptide.

Claim 41 (canceled)

Claim 42 (withdrawn – currently amended): A method of generating a variant comprising:

obtaining a nucleic acid comprising a sequence as set forth in ~~SEQ ID NO:26, or a sequence as set forth in~~ claim 1, ~~or, sequences complementary thereto, or fragments comprising at least 30 consecutive nucleotides thereof, or fragments comprising at least 30 consecutive nucleotides of the sequences complementary to SEQ ID NO:26~~; and

modifying one or more nucleotides in said sequence to another nucleotide, deleting one or more nucleotides in said sequence, or adding one or more nucleotides to said sequence.

Claim 43 (withdrawn): The method of claim 42, wherein the modifications are introduced by a method selected from the group consisting of error-prone PCR, shuffling, oligonucleotide-directed mutagenesis, assembly PCR, sexual PCR mutagenesis, in vivo mutagenesis, cassette mutagenesis, recursive ensemble mutagenesis, exponential ensemble mutagenesis, site-specific mutagenesis, gene reassembly, gene site saturation mutagenesis and any combination thereof.

Claim 44 (withdrawn): The method of claim 42, wherein the modifications are introduced by error-prone PCR.

Claim 45 (withdrawn): The method of claim 42, wherein the modifications are introduced by shuffling.

Claim 46 (withdrawn): The method of claim 42, wherein the modifications are introduced by oligonucleotide-directed mutagenesis.

Claim 47 (withdrawn): The method of claim 42, wherein the modifications are introduced by assembly PCR.

Claim 48 (withdrawn): The method of claim 42, wherein the modifications are introduced by sexual PCR mutagenesis.

Claim 49 (withdrawn): The method of claim 42, wherein the modifications are introduced by *in vivo* mutagenesis.

Claim 50 (withdrawn): The method of claim 42, wherein the modifications are introduced by cassette mutagenesis.

Claim 51 (withdrawn): The method of claim 42, wherein the modifications are introduced by recursive ensemble mutagenesis.

Claim 52 (withdrawn): The method of claim 42, wherein the modifications are introduced by exponential ensemble mutagenesis.

Claim 53 (withdrawn): The method of claim 42, wherein the modifications are introduced by site-specific mutagenesis.

Claim 54 (withdrawn): The method of claim 42, wherein the modifications are introduced by gene reassembly.

Claim 55 (withdrawn): The method of claim 42, wherein the modifications are introduced by gene site gene site saturation mutagenesis.

Claims 56 to 60 (canceled)

Claim 61 (withdrawn – currently amended): A method for comparing a first sequence to a reference sequence wherein said first sequence comprises a nucleic acid sequence as set forth in claim 1 ~~or claim 3~~, the method comprising the following steps:

reading the first sequence and the reference sequence through use of a computer program which compares sequences; and

determining differences between the first sequence and the reference sequence with the computer program.

Claim 62 (withdrawn): The method of claim 61, wherein determining differences between the first sequence and the reference sequence comprises identifying polymorphisms.

Claim 63 (withdrawn – currently amended): A method for identifying a feature in a sequence as set forth in claim 1 ~~or claim 3~~, the method comprising the following steps:

reading the sequence through the use of a computer program which identifies features in sequences; and

identifying features in the sequences with the computer program.

Claim 64 (canceled)

Claim 65 (withdrawn): A method of catalyzing the hydrolysis of an ester comprising contacting a sample containing an esterase with a polypeptide encoded by a sequence as set forth in claim 1 under conditions which facilitate the hydrolysis of the ester.

Claim 66 (canceled)

Claim 67 (currently amended): A nucleic acid probe for isolation or identification of esterase genes comprising an oligonucleotide ~~at least 30 nucleotides in length and~~ having ~~at least 30~~

~~contiguous nucleotides of~~ the nucleic acid sequence of claim 4 or (b) a sequence completely complementary to (a).

Claim 68 (previously presented): The probe of claim 67, wherein the oligonucleotide comprises DNA or RNA.

Claims 69 to 79 (canceled)

Claim 80 (original): The probe of claim 67, wherein the probe further comprises a detectable isotopic label.

Claim 81 (original): The probe of claim 67, wherein the probe further comprises a detectable non-isotopic label selected from the group consisting of a fluorescent molecule, a chemiluminescent molecule, an enzyme, a cofactor, an enzyme substrate, and a hapten.

Claims 82 to 87 (canceled)

Claim 88 (withdrawn – currently amended): A method for modifying small molecules, comprising mixing a polypeptide encoded by a polynucleotide of claim 1 ~~or claim 3~~ thereof with a small molecule to produce a modified small molecule.

Claim 89 (withdrawn): The method of claim 88 wherein a library of modified small molecules is tested to determine if a modified small molecule is present within the library which exhibits a desired activity.

Claim 90 (withdrawn): The method of claim 89 wherein a specific biocatalytic reaction which produces the modified small molecule of desired activity is identified by systematically eliminating each of the biocatalytic reactions used to produce a portion of the library, and then testing the small molecules produced in the portion of the library for the presence or absence of the modified small molecule with the desired activity.

Claim 91 (withdrawn – currently amended): The method of claim 90 wherein the specific biocatalytic reactions which produce the modified small molecule of desired activity is ~~optionally~~ repeated.

Claim 92 (withdrawn): The method of claim 90 or 91 wherein (a) the biocatalytic reactions are conducted with a group of biocatalysts that react with distinct structural moieties found within the structure of a small molecule, (b) each biocatalyst is specific for one structural moiety or a group of related structural moieties; and (c) each biocatalyst reacts with many different small molecules which contain the distinct structural moiety.

Claims 93 to 97 (canceled)

Claim 98 (currently amended): A vector comprising a nucleic acid as set forth in claim 1 ~~or claim 3~~.

Claim 99 (previously presented): The vector of claim 98, wherein the vector comprises a viral particle, a baculovirus, a phage, a plasmid, a cosmid, a fosmid, a bacterial artificial chromosome, a viral DNA or a P1-based artificial chromosome.

Claim 100 (currently amended): A host cell comprising a nucleic acid as set forth in claim 1 ~~or claim 3~~.

Claim 101 (previously presented): The host cell of claim 100 comprising a eukaryotic cell or a prokaryotic cell.

Claim 102 (previously presented): The host cell of claim 101 comprising a plant cell, a mammalian cell, a fungal cell, a bacterial cell, a yeast cell or an insect cell.

Claims 103 to 106 (canceled)

Claim 107 (currently amended): The isolated, synthetic or recombinant nucleic acid of claim 1 (a) ~~or claim 3 (a)~~, wherein the esterase activity comprises catalyzing the hydrolysis of an ester to an organic acid ~~a~~nd an alcohol.

Claim 108 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 4 (a), wherein the esterase activity comprises catalyzing the hydrolysis of an ester to an organic acid and an alcohol.

Claim 109 (currently amended): The isolated, synthetic or recombinant nucleic acid of claim 1 (a) ~~or claim 3 (a)~~, wherein the esterase activity functions at temperatures above 100°C, or, below 0°C.

Claim 110 to 125 (canceled)

Claim 126 (currently amended): The isolated, synthetic or recombinant nucleic acid of claim 1 (a) ~~or claim 3 (a)~~, wherein the polypeptide retains an esterase activity in an environment comprising a pH of greater than pH 11.

Claim 127 (currently amended): The isolated, synthetic or recombinant nucleic acid of claim 21, wherein the sequence identity to SEQ ID NO:26 is at least ~~about~~ 98%.

Claims 128 to 129 (canceled)

Claim 130 (new): A vector comprising a nucleic acid as set forth in claim 4.

Claim 131 (new): The vector of claim 130, wherein the vector comprises a viral particle, a baculovirus, a phage, a plasmid, a cosmid, a fosmid, a bacterial artificial chromosome, a viral DNA or a P1-based artificial chromosome.

Claim 132 (new): A host cell comprising a nucleic acid as set forth in claim 4.

Claim 133 (new): The host cell of claim 132, wherein the cell is a eukaryotic cell or a prokaryotic cell.

Claim 134 (new): The host cell of claim 132, wherein the cell is a plant cell, a mammalian cell, a fungal cell, a bacterial cell, a yeast cell or an insect cell.